Problem 1. (5 pts.) Consider the vector field $\mathbf{F}$ and curve $C$ (a circle with radius $\frac{1}{2}$) shown in the figure to the right, below. If $D$ is the region enclosed by $C$ and $|\mathbf{F}| = 2$ on $C$, what is $\iint_D |\text{curl} \mathbf{F}| \, dA$?

Problem 2. (5 pts.) If $\mathbf{F} = <x, y, z>$ and $S$ is the part of the plane passing through the points $(2, 0, 0)$, $(0, 4, 0)$ and $(0, 0, 4)$ that lies in the first octant, find $\iint_S \mathbf{F} \cdot d\mathbf{S}$. 